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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,993	08/29/2006	Daniel Allen Smith	3638-891 (AMK)	4226
23117 7590 07/15/2009 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
ADAMS, GREGORY W				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/590,993

Applicant(s)

SMITH ET AL.

Examiner

GREGORY W. ADAMS

Art Unit

3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-9,11 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-18 is/are allowed.
- 6) ☒ Claim(s) 1-3,5-9,11 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2/24/09
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 112

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For purposes of examination claim 5 is assumed to depend from claim 11.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2 & 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehmke (US 3,598,263) (previously cited) in view of Rau et al. (US 2004/0052627) and Higgs (US 2003/0036368). Ehmke discloses an attachment comprising:

- a coupling section (5, 6, 7) coupleable with a telescopic material handler (e.g. forklift);
- a gripping system 47 that securely holds a load;
- a manipulation assembly supporting a gripping system and connected to a coupling section, a manipulation assembly being movable in at least five degrees of freedom (see below) independent from additional degrees of freedom provided by movements of a telescopic material handler; and
- an operator-controlled control system (FIG. 5) effecting control of a manipulation assembly, an attachment further comprising control indicators providing a visual indication of which radio transmitter is in control of the load.

Applicant defines a degree of freedom as requiring an axis. Para. [0010] Ehmke discloses at least five axes which are in/out activation of cylinders 27-29 (C2/L57), side-to-side activation of cylinder 21-23 (C2/L50-56), cup vertical movement through independent activation of cylinders 27-29 (FIG. 2; C2/L66-72), rotation about vertical axis (FIG. 4; C2/L20-21), rotation about horizontal axis (FIG. 3; C3/L21), and rotation about axes indicated generally as 30 (FIG.2). Thus, Ehmke's seven axes define seven degrees of freedom. Ehmke discloses operator control and does not disclose primary and secondary radio transmitters.

Rau et al. discloses a five degree-of-freedom attachment having an operator-controlled control system 50 effecting control of a manipulation assembly wherein an operator-controlled control system comprises a primary radio transmitter 60 and a secondary radio transmitter 62, and an attachment further comprising control indicators,

e.g. motion of various components, providing visual indication of which radio transmitter is in control of a load. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the operator-controlled control system of Ehmke to include a primary and second remote controls, as per the teachings of Rau et al., such that in attachments with multiple degrees of freedom where "must maintain control over not only the axes but also the hose end, in order to avoid the risk of uncontrolled movement of the hose end and therewith an endangerment of the construction site personnel" (para. [0003]) correction routines facilitated by dual remote controls of multiple articulation motors allows for error correction of boom mast and improved attachment positioning. Paras. [0007-0009]).

Higgs discloses an operator-controlled control system effecting control of a assembly wherein an operator-controlled control system comprises a primary radio transmitter 4 and a secondary radio transmitter 6, and wherein control of a load is transferable between a primary 4 and secondary 6 radio transmitters such that only one of a primary and secondary radio transmitters has control of a load at a time (paras. [0023-0024]), an attachment further comprising control indicators providing a visual indication of which radio transmitter is in control of a load.

Claims 5 & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehmke in view of Hoffman (US 4,460,208) (previously cited) and No et al. (US 4,828,304). Ehmke discloses an attachment comprising:

- a coupling section 5-7 coupleable with a telescopic material handler;
- a gripping system comprising vacuum cups 47 that securely holds a load 26;

- a manipulation assembly supporting a gripping system and connected to a coupling section, a manipulation assembly being movable in at least five degrees of freedom independent from additional degrees of freedom provided by movements of the telescopic material handler; and
- an operator-controlled control system (FIG. 5) effecting control of a manipulation assembly.

Applicant defines a degree of freedom as requiring an axis. Para. [0010] Ehmke discloses at least five axes which are in/out activation of cylinders 27-29 (C2/L57), side-to-side activation of cylinder 21-23 (C2/L50-56), cup vertical movement through independent activation of cylinders 27-29 (FIG. 2; C2/L66-72), rotation about vertical axis (FIG. 4; C2/L20-21), rotation about horizontal axis (FIG. 3; C3/L21), and rotation about axes indicated generally as 30 (FIG.2). Thus, Ehmke's seven axes define seven degrees of freedom. Hoffman (US 4,460,208) (previously cited). Ehmke discloses that for "handling larger plate glass workpieces 26, it is contemplated that additional frame elements (not shown) can be added to the frame 34 with additional suction cups 47 to additionally stabilize the workpiece 26." Hoffman discloses two independent circuits (indicated generally as 13, 15) and reservoirs 21, 23 and a vacuum pump 26 such that a "failure of a line or vacuum cup in either pair has no adverse effect on the vacuum in the other pair and the object is still firmly held." C2/L65. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus Ehmke to vacuum pumps and reservoirs, as per the teachings of Hoffman, for redundant vacuum connection to prevent dropping of an article.

No et al. discloses an attachment apparatus including a plurality of vacuum ports 172 and further comprising a sandwiching plate 140, 150, 160, 170 (see also 270) which when applied to either side of article M grip article M between plates 170. While explicitly disclosed as a clamp No's plates 170 combine to hold an article therebetween which is the functional equivalent. No et al. teach that it is common to use grippers, e.g. clamps, in combination with vacuum pickups where an article to be pickup does not lend itself to maintaining a vacuum, e.g. perforated metal or wire net. C1-2. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Ehmke to include a clamp, as per the teachings of No et al., to enable an attachment apparatus to move articles that do not lend themselves exclusively to vacuum pickup.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ehmke in view of Hoffman and No et al. and further in view of Tanaka (US 5,690,377) (previously cited). Tanaka discloses independent circuits including a manifold valve 37, 39 that separate a respective vacuum reservoir from a vacuum pump 40 to vacuum chuck articles of different sizes. C1. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Ehmke to include manifold valves for each circuit, as per the teachings of Tanaka, to lift articles of different sizes.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehmke in view of Hoffman, No et al. and Tanaka and further in view of Bolotin et al. (US 6,467,824) (previously cited). Bolotin discloses a vacuum switch 145-148 that measures

a vacuum level, an attachment further comprising a first signal coupled with a vacuum switch, a first signal indicating that sufficient vacuum has been achieved. Bolotin teaches a fail-safe pick and place unit and system in the event of a pick and place system failure. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Schmidt to include vacuum switches, as per the teachings of Bolotin et al., to send a signal at failure.

Allowable Subject Matter

Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 14-18 are allowed.

Response to Arguments

Applicant's arguments/amendments filed June 12, 2009 with respect to claims 3 & 14-18 have been fully considered and are persuasive. The previous rejection has been withdrawn. With respect to the other pending claims Applicant's arguments/amendments filed June 12, 2009 have been fully considered but they are not persuasive. While used for a different purpose the scope of an apparatus claims is positively recited structure. Thus, Tanaka's manifold valves reads on claim 6. If there is a novelty associated with manifold valves and separation of vacuum reservoirs from a vacuum pump to serve as a safety system Applicant is respectfully requested to add those elements into claim 6.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY W. ADAMS whose telephone number is (571)272-8101. The examiner can normally be reached on M-Th, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on (571) 272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gregory W Adams/
Primary Examiner, Art Unit 3652